

IN THE SPECIFICATION:

Please amend the paragraphs starting at page 1, line 11, and ending at page 2, line 9, as follows.

--"Photonic crystal" is an artificial novel crystal that has been proposed in recent years and ~~[[is]]~~ has been attracting attention ever since (E. Yablonovitch, Phys. Rev. Lett., 58 (1987) 2059-2062). It can be obtained by periodically arranging substances having different refractive indexes at intervals substantially equal to the optical wavelength. Research and development efforts are being paid to produce optical elements out of such a crystal substance because it has peculiar optical characteristics including those of showing a photonic band gap and having apparently abnormal refractive indexes that are attributable to its so-called photonic band structure resembling ~~[[to]]~~ the band structure of a semiconductor. It ~~[[and]]~~ can also be engineered artificially in terms of structure and scale.

Active-type optical elements are among such optical elements that are worthy of paying attention. An active-type optical element is an element at least one of whose optical characteristics can be externally and actively controlled not only in the design stage but also while it is being used. Expected applications of active-type optical elements include variable filters, optical switches and many other optical devices.--

Please amend the paragraphs starting at page 7, line 11, and ending at page 8, line 2, as follows.

--An actuator for applying external mechanical force to the surfaces of the support members is fixed to the crystal. The actuator is driven to apply force to the pillar-shaped

members perpendicularly by way of the support members. As a result, the height of the pillar-shaped members changes and, at the same time, the diameter and the cross-section of the pillar-shaped members also change at a middle part between the top and the bottom thereof. More specifically, the cross-section of the pillar-shaped members increases at a middle part thereof when pressure is applied to them from the top and bottom support members, whereas it decreases when tensile force is applied to them. The ratio of the change in the cross-section caused by the applied force varies depending on the height and the cross-sectional profile of the pillar-shaped members as well as on Young's modulus and Poisson's ratio that are specific to the material of the pillar-shaped members.--

Please amend the paragraphs starting at page 8, line 10, and ending at page 9, line 9, as follows.

--The change in the cross-section changes the distribution of refractive indexes in a period that are arranged periodically, to by turn change the photonic band structure. As a result, it is possible to regulate an optical characteristic of the photonic crystal that may relates to reflection or refraction of light.

With the above-described arrangement, the optical characteristic can be regulated substantially only by changing the diameter of the pillar-shaped members. This means that, even when the pillar-shaped members are arranged over a large area, they can be deformed uniformly, while maintaining the overall dimensional precision. In other words, the characteristics of the entire crystal can be unified after a regulating operation.

Additionally, with the above-described arrangement, the members are practically not subjected to restrictions and the designer of such a photonic crystal can enjoy an enhanced degree of freedom for selecting the materials. In other words, the designer can select appropriate materials that can simplify the manufacturing process.

When the support members are made of a piezoelectric material, they can be used as ~~actuator~~ actuators so that force can be directly applied to the pillar shaped members.--

Please amend the paragraph starting at page 9, line 16, and ending at line 23, as follows.

--Thus, according to the invention, it is possible to provide a method of controlling an optical characteristic of an optical element that can improve the dimensional precision of the entire optical element, unify the optical characteristics and enhance the degree of freedom of choosing materials. In addition, the invention provides ~~and also~~ an optical device that can be used with the method.--